

NEW *MECYNOTARSUS* WITH A KEY TO THE
NEW WORLD SPECIES (COLEOPTERA: ANTHICIDAE)

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ABSTRACT

Relationships among the New World members of *Mecynotarsus* are discussed, and a key to the New World species is included. The *candidus*- and *schenklingi*-groups are designated and defined. The *candidus*-group contains *M. candidus* LeConte and *M. delicatulus* Horn. The *schenklingi*-group contains *M. schenklingi* Pic. Three new species are added to Werner's *elegans*-group: *M. alvarado* from Veracruz, Mexico; *M. vafer* from Nayarit to Sonora, Mexico; and *M. falcatus* from Texas and Colorado. *Notoxus guayanensis* Pic is newly placed in synonymy with *M. schenklingi*, and *Notoxus vianay* Pic is placed as *Incertae sedis* in *Mecynotarsus*. New records for various species are included. *Mecynotarsus balsasensis* Werner was collected in numbers at a cantharidin trap for the first such record for the genus.

Mecynotarsus is currently a large genus of the Notoxinae, containing a rather heterogeneous assemblage of species. Members of the genus are very similar in dorsal aspect, and it appears that several distinct groups have been placed in this taxon due to this convergence in appearance. There is so much difference in the form of the genitalia, wing venation, and shape of the outer edge of the mesosternum, that this group would have been split into a number of genera in the more well-worked Anthicinae (see Bonadonna 1974 on the importance of the mesosternal form in the Anthicinae). In this paper two new "groups" of *Mecynotarsus* for the New World are proposed and are distinguished from Werner's (1962) *elegans*-group. These groups are very different from each other and could be considered dissimilar enough to be genera, but until a more complete sample of the world fauna is available, the New World species are left in species-groups. For this reason the genus *Mecynotarsus* is separated from other genera of the Notoxinae only in that its members usually have the metatarsi longer than the metatibiae, the pronotal pits below the cervical angulation reduced or absent, and the setae between the ommatidia of the compound eyes not club-shaped.

Seven very distinctive species, *M. elegans* LeConte, *M. sexnotatus* Champion, and 5 new taxa, were placed by Werner (1962) in his *elegans*-group. He attributed 7 characteristics to the group, of which the most notable are: Setae modified into truncate scales on pronotum and elytra; short, anteriorly directed scales between ommatidia of compound eyes; pronotal horn with 3 large teeth on each side; and elytra inflated. Other characters delimiting the group are: Lateral mesosternal margins straight, only slightly curved near posterior margin (Fig. 1) and lacking pits below cervical angulation of pronotum. Werner noted that the median pair of basal pronotal tactile setae were lacking in this group. These setae are present in species I have seen, but are usually poorly differentiated and may appear to be absent.

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The species of this group are found not only in sandy seashore areas, the classical habitat of the genus, but also in inland areas of desert pavement. New records of *M. balsasensis* Werner indicate that this species occurs in a wide variety of habitats.

Other New World species not included in the *elegans*-group were *M. candidus* LeConte, *M. delicatulus* Horn, and *M. schenklingi* Pic. Werner considered *M. candidus* and *M. delicatulus* to be close to the type of the genus, *M. serricornis* Panzer, while *schenklingi* appeared to be distinct from any of the other known species. Two new groups for the New World are designated in this paper: The *schenklingi*-group, containing *M. schenklingi* Pic; and the *candidus*-group, containing *M. candidus* and *M. delicatulus*.

The *schenklingi*-group is defined as those *Mecynotarsus* with these characteristics: 4 to 6 teeth on each side of horn, no asperities on horn or on underside of head, no keel at middle of horn; lacking median pair of tactile setae at base of pronotum, with pair of lateral tactile setae; head with lateral row of erect flattened setae which outline horn when head is elevated; compound eyes with short aciculate setae between ommatidia, head with scattered scale-like setae; thickened setae covering pronotum and elytra; lacking pits on cervical margin of pronotum; lateral margin of mesosternum straight, with slight curve at posterior margin (Fig. 2); genitalia with phallobase consisting of 3 parts. This species has been collected at the seashore and along the sandy banks of an arroyo (Bruch 1938).

The *schenklingi*-group is most similar to the *elegans*-group in the shape of the mesosternum and the modified setae. The eyes of *schenklingi* lack modified setae, but there are scattered scale-like setae on the head. The only other species with these modified setae are those *Mecynotarsus* from Australia.

The *candidus*-group is characterized by: margins of horn with approximately 8 teeth on each side, conspicuous darkened asperities on horn and underneath head, asperities on horn often forming line between crest and horn margins and usually forming median keel on crest; median pair of tactile setae distinct at base of pronotum, lateral pair of tactile setae present; sides of head lacking setae which outline horn; short, aciculate setae between ommatidia of compound eyes; lateral margin of mesosternum angularly sinuate (Fig. 3); small, nude pits below angulation on cervical margin of pronotum; genitalia with phallobase much longer than parameres. This group is associated with sandy inland and seashore areas of North America.

The *candidus*-group is separated from the species near *M. serricornis* by the form of the horn and the form of the mesosternum. The *candidus*-group has a horn with outwardly bowed sides, the horn margins almost serrate (Fig. 4) and the lateral mesosternal edge angularly sinuate (Fig. 3). *M. serricornis* and a few other Eurasian species have the horn wedge-shaped in outline, with about 6 teeth on each side of the horn, and the mesosternum broadly expanded laterally, almost covering the mesepisternum.

Pic (1912) described *M. schenklingi* from Paraguay and later described *Notoxus guayanensis* from French Guiana (1914) and *Notoxus vianay* from Argentina (1940). I was able to obtain specimens of *M. schenklingi* (identified by H. von Kreckich-Strassoldo) and *N. guayanensis* (identified by M. Pic) from the British Museum, and they were found to represent the same species. *N. guayanensis* is here considered a junior synonym of *M. schenklingi*. Pic

considered *vianay* to be close to *guayanensis*. F. G. Werner (*in litt.*) examined the type of *N. vianay* and considered it a *Mecynotarsus*. This name is probably a synonym of *M. schenklingi*, but until further proof is obtained, it is here placed as *Incertae sedis* in *Mecynotarsus*. *M. schenklingi* is the only species in the genus recorded from South America.

Members of the *elegans*-group are seldom collected. A recent discovery has been that cantharidin-baited traps are attractive to *M. balsasensis* Werner (Chandler 1976). At Salina Cruz, Oaxaca, such a trap collected hundreds of specimens on the beach, while other collecting techniques were unsuccessful. Hopefully, cantharidin will also be attractive to the other members of the group.

Measurements in the species descriptions are all in millimeters. Total length of a specimen is the pronotal plus elytral lengths. When possible, abbreviations for the collections where specimens are placed are those of Arnett and Samuelson (1969). Other abbreviations used are: DSC, private collection of author; FGW, collection of F. G. Werner, University of Arizona, Tucson; and KSH, K. S. Hagen collection, University of California, Berkeley. The key to species is largely a modification of Werner's (1962) key.

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KEY TO THE NEW WORLD SPECIES OF *Mecynotarsus*

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|--------|---|----------------------------|
| 1. | Setae normal, not thickened or scale-like; median pair of tactile setae present at base of pronotum; more than 6 teeth on each side of horn (<i>candidus</i> -group)..... | 2 |
| 1'. | Setae modified, thickened or scale-like; median pair of tactile setae at base of pronotum lacking or poorly differentiated; horn margins with 6 or fewer teeth on each side | 3 |
| 2(1). | Often with diffuse median darkened area on elytra; west of Rocky Mountains..... | <i>M. delicatulus</i> Horn |
| 2'. | Without median darkened area; east of Rocky Mountains....
..... | <i>M. candidus</i> LeConte |
| 3(1'). | Horn with 4-6 teeth on each side; setae on pronotum and elytra thickened; South America (<i>schenklingi</i> -group).....
..... | <i>M. schenklingi</i> Pic |
| 3'. | Horn with 3 teeth on each side, setae in form of flattened elongate scales; North and Central America (<i>elegans</i> -group)..... | 4 |

- 4(3'). Sickle-shaped band of white scales arising from lateral margins in posterior half of elytra, advancing into anterior half of elytra near midline, tips of elytra pale (Fig. 10, 11); Colorado to Texas *M. falcatus*, new species
- 4'. Bands of white pubescence bar-like or oblique in posterior half of elytra, not proceeding anteriorly into anterior half of elytra 5
- 5(4'). In dorsal view dark midband of elytra interrupted either along elytral suture or laterally (Fig. 5 & 7) 6
- 5'. In dorsal view dark midband of elytra not interrupted..... 7
- 6(5). Dark midband interrupted along elytral suture (Fig. 7); males with antennomeres IV-VII serrate (Fig. 8); Veracruz *M. alvarado*, new species
- 6'. Dark midband interrupted laterally (Fig. 5); males with antennomeres V-X flattened and quadrate (Fig. 6); Sinaloa and Nayarit *M. vafer*, new species
- 7(5'). Patch of dark scales just anterior to elytral apex not or just barely reaching suture..... 8
- 7'. Dark scales just anterior to apex forming a broad band across suture 10
- 8(7). Elytral suture dark in anterior half, interrupted at midline by narrow transverse band; dark mark just anterior to elytral apices a narrow, oblique stripe; Florida to Alabama.....
..... *M. elegans* LeConte
- 8'. Elytral suture pale between base and median band; basal half of elytra and disc of pronotum with intermixed brown and white scales 9
- 9(8'). Dark scales at base of elytra same shade as those in transverse band; posterior dark marking somewhat crescentic, pale zone between it and transverse band also curved; Nuevo Leon *M. intermixtus* Werner
- 9'. Dark scales at base of elytra much lighter than those in transverse band and posterior dark marks; pale zone between transverse band and posterior marks almost transverse; Jamaica..... *M. jamaicanus* Werner
- 10(7'). Scales on elytra so sparse that the pale markings are not obvious in some lights; pale spots on elytra isolated; Guatemala *M. sexnotatus* Champion
- 10'. Pale pattern very distinct 11
- 11(10'). Pronotum with brown scales along midline behind crest; Costa Rica *M. nevermanni* Werner
- 11'. Midline of pronotum with pale scales, flanked by darker scales laterally..... 12
- 12(11'). Humeral pale area extending along lateral margins of elytra; southern Mexico *M. balsasensis* Werner

- 12'. Humeral pale area not extending along lateral margins of elytra; El Salvador and Quintana Roo.....
 *M. salvadorensis* Werner

Mecynotarsus vafer Chandler, **new species**
 (Fig. 5, 6)

Ground color of pronotum fulvous, ground color of elytra anthracine; elytral scales truncate, $.04 \times .02$; scales on pronotum whitish laterally, brownish-orange along midline, 2 pairs lateral setae near base, median basal pair slightly flattened. Elytra with band of brown scales extending from base along suture to middle where expanded, isolated spots of brown scales lateral to point of expansion, spots of brown scales centered in apical third, set off by white scales. Elytra inflated, humeri indistinct. Length 1.74-2.03.

Male holotype: San Blas, Nayarit, MEXICO. Length 2.02. Head 0.46 long, 0.42 wide, eyes 0.11×0.10 , scales on antennomeres I-II, broad setae on III, V-X flattened and quadrate. Prothorax 0.70 long, 0.34 wide at base, greatest width 0.52 at 0.24 from base, horn 0.28 long, 0.18 wide behind basal pair of tubercles, 3 tubercles on each side and one at apex, crest 0.28 long, 0.08 wide at base, serrate. Elytra 1.32 long, 0.44 wide at base, greatest width 0.78 at 0.44 from base. Metatibia 0.52 long, length metatarsomeres: I 0.24, II 0.16, III 0.12, IV 0.12. Male fifth sternite emarginate, apices of elytra separately rounded. Female similar to male except fifth sternite simple and elytral apices conjointly rounded.

This species has the phallobase not laterally lobiform. Distinct from the others in the group by the different ground color of the pronotum and elytra and the medially centered areas of brown scales.

Distribution: central west coast of Mexico. Holotype male: San Blas, Nayarit, MEXICO, 24/26 April 1961, Howden & Martin, at light. Twenty-two paratypes: 3 males, 1 female, eutopotypical (CNCI, DSC); 3 females, same data except not at light (CNCI, DSC); 1 female same data except, sand dunes (FWG); 1 male, Mazatlan, Sinaloa, 14 August 1969, P. H. Arnaud, Jr., E. S. Ross, D. C. Rentz, near beach (CASC); 7 males, 4 females, sand dunes 8 km N, 16 km W of Guaymas, Sonora, 10 April 1974, D. Giuliani (CDAE). Holotype to be deposited in the Canadian National Collection, Ottawa.

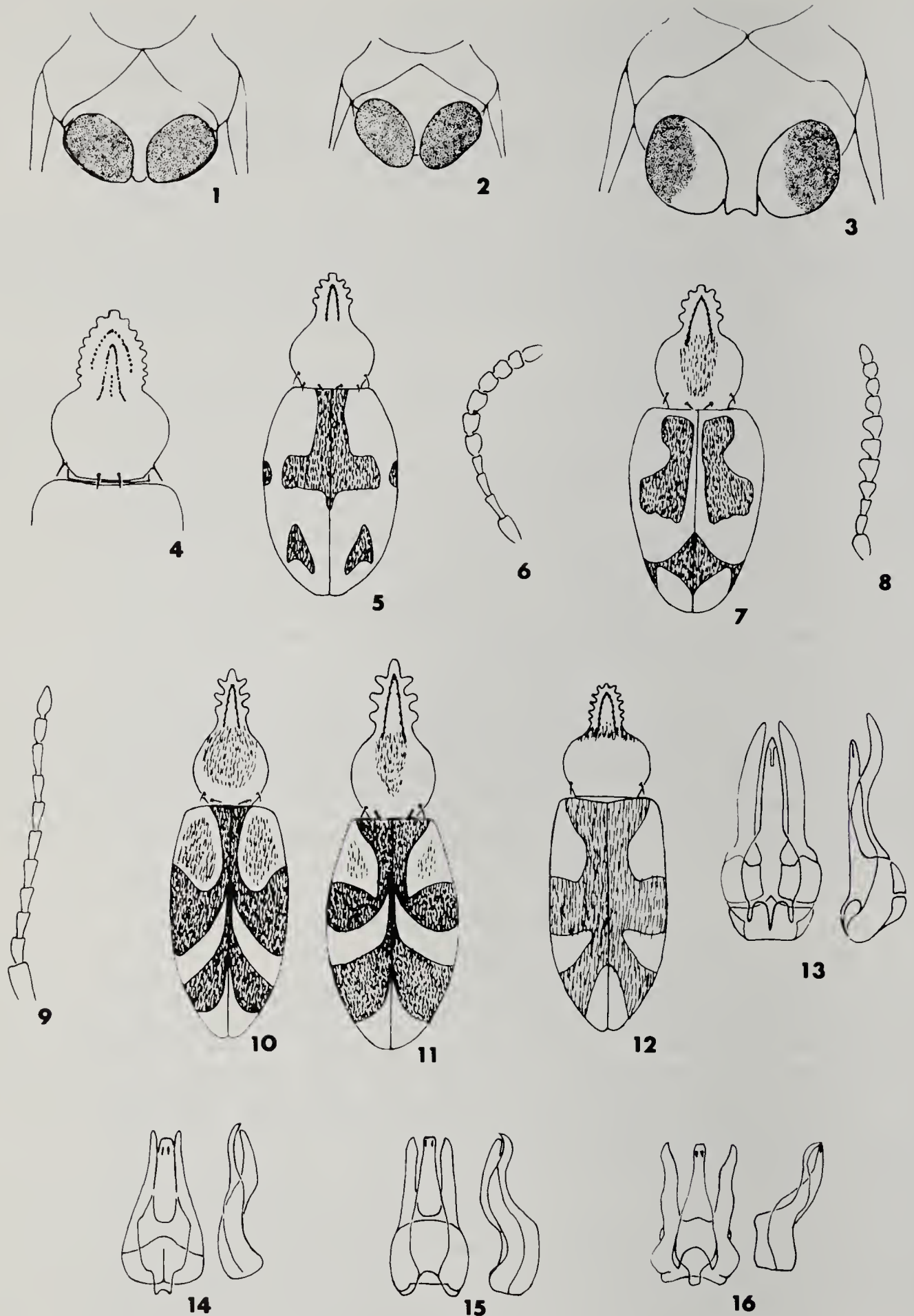
Mecynotarsus alvarado Chandler, **new species**
 (Fig. 7, 8)

Ground color of pronotum and elytra brown to fuscous, elytral scales truncate, 0.04×0.01 , scales on lateral margins of pronotum whitish, becoming brown medially, 2 pairs lateral setae near base, neither flattened. Elytral with brown scales extending posteriorly from base on either side of suture, expanding and usually ending in circular area near middle, spot of brown scales on suture in center of apical half, rarely extending to meet anterior dark areas, set off by white scales. Elytra slightly inflated, humeri distinct. Length 1.74-2.05.

Male holotype: 12 mi NW Alvarado, Veracruz, MEXICO. Length 1.96. Head 0.46 long, 0.39 wide, eyes 0.12×0.12 , antennomere I with scales at apex, IV-IX expanded laterally at apex, serrate. Prothorax 0.76 long, 0.36 wide at base, greatest width 0.50 at 0.28 from base, horn 0.31 long, 0.22 wide behind basal pair of tubercles, 3 tubercles on each side and one at apex, crest 0.32 long, 0.10 wide at base, serrate. Elytra 1.20 long, 0.44 wide at base, greatest width 0.72 at 0.44 from base. Metatibia 0.50 long, length metatarsomeres: I 0.25, II 0.16, III 0.12, IV 0.14. Male fifth sternite shallowly emarginate, elytral apices separately rounded. Female similar to male except fifth sternite simple, elytral apices conjointly rounded and antennae not so serrate.

Phallobase is not laterally lobiform. Distinct by the elytral pattern and the serrate antennae of the males.

Distribution: beaches in Veracruz. Holotype male: 12 mi NW Alvarado, Veracruz, MEXICO, 25 July, R. L. Mangan & D. S. Chandler, under beach plants. Thirteen paratypes: 8 males, 5 females, eutopotypical (DSC, FGW). The holotype is to be deposited in the United States National Museum.



Figs. 1-3, ventral view of mesosternum: 1) *M. balsasensis*; 2) *M. schenklingi*; 3) *M. delicatulus*. Fig. 4, dorsal view of pronotum of *M. delicatulus*. Figs. 5, 7, 10-12, dorsal view: 5) *M. vafer*; 7) *M. alvarado*; 10), *M. falcatus*, San Diego, Texas; 11), *M. falcatus*, Pueblo, Colorado; 12) *M. schenklingi*. Figs. 6, 8-9, male antenna: 6) *M. vafer*; 8) *M. alvarado*; 9) *M. balsasensis*. Figs. 13-16, ventral and lateral views of male genitalia: 14) *M. schenklingi*; 15) *M. vafer*; 16) *M. alvarado*; 17) *M. falcatus*.

Mecynotarsus falcatus Chandler, **new species**

(Fig. 10, 11)

Ground color of pronotum and elytra ferruginous to fusco-rufous, scales truncate, 0.04×0.01 , scales on pronotum white on margins, tawny toward midline, 2 pairs lateral setae near base, basal pair shorter and flattened. Elytra with triangular area of white scales behind humeri, mixed tawny and white scales at center of triangular area, sickle-shaped bands of white scales approaching suture, extending anteriorly, apex of elytra with area of white setae along suture, set off by darker ferruginous to fuliginous scales. Elytra slightly inflated, humeri distinct. Length 1.77-2.32.

Male holotype: San Diego, Texas. Length 1.77. Head 0.38 long, 0.33 wide, eyes 0.09×0.09 , antennomeres I-VI with scales, broad setae on VII-VIII. Prothorax 0.62 long, 0.28 wide at base, greatest width 0.40 at 0.20 from base, horn 0.26 long, 0.12 wide behind basal pair of tubercles, 3 tubercles on each side and one at apex, crest 0.21 long, 0.04 wide at base, indistinctly crenulate. Elytra 1.15 long, 0.38 wide at base, greatest width 0.63 at 0.48 from base. Metatibia 0.40 long, length metatarsomeres: I 0.20, II 0.12, III 0.10, IV 0.12. Male fifth visible sternite broadly and shallowly emarginate. Female similar to male except fifth sternite simple.

Distribution: Colorado to Texas. Holotype male: San Diego, Duval Co., Texas, 26 May, E. A. Schwarz. Nineteen paratypes: 3 males, 9 females, eutopotypical (DSC, USNM); 1 male, same data except 24 May (USNM); 3 females, same data except, 13 June (USNM); 2 males, 1 female, same data except no date (USNM). Conspecific, not included in type series: El Paso Co.: 1 male, 2 females, El Paso, July, Wickham (USNM). Colorado: Pueblo Co.: 3 males, 4 females, Pueblo, 19 August 1953, G. H. Nelson, on ground (DSC, GHNC, KSH). Crowley Co.: 2 males, Fowler, 15 June 1952, R. S. Beal. The holotype is to be deposited at the United States National Museum.

This species has 2 distinct color forms in the specimens I have seen. The populations from El Paso and Pueblo are dark, the Crowley and San Diego populations markedly lighter. There is a corresponding difference in the area of the lateral origination of the sickle-shaped bands of white scales. In the dark form the band arises in the posterior third of the elytra (Fig. 11) and, in the light form from San Diego, the bands arise near the midline (Fig. 10). The Crowley population, although light, has the bands arising intermediate to these 2 positions. With this information and the knowledge that the genitalia are identical, I have concluded that the 2 forms represent the same species.

Mecynotarsus schenklingi Pic

(Fig. 2, 12, 13)

Mecynotarsus schenklingi Pic 1912, Coleopt. Rundschau 4:54 (Type loc.—Paraguay). Bruch 1938:168-9, Fig. 16.

Notoxus guayanensis Pic 1914, Bull. Soc. Zool. France 39:181 (Type loc.—French Guiana). **New synonymy.**

Distribution: South America. COLUMBIA, Bolivar, Cartagena, Boca Grande, 23 December 1964, R. R. & D. L. Craig (CASC). FRENCH GUIANA: type of *N. guayanensis*. Maroni (BMNH). LESSER ANTILLES: Grenada, 26 January 1936, Sta. 160, R. M. Blackwelder (USNM). BRAZIL: Pará, Santarem (BMNH). Pernambuco, Olinda, Rio Doce, 3 April 1970, A. Pereira; same data except, 24 March 1970, A. Pereira; same data except, 24 March 1970, M. C. Leal (DSC, FGW). PARAGUAY: type of *M. schenklingi*. ARGENTINA: Piquete, Santa Fe (cited in Bruch 1938).

*Incertae sedis**Mecynotarsus vianay* (Pic), **New combination**

Notoxus vianay Pic 1940, L'Echange-Opuscula martialis I-3, (Type loc.—Argentina).

NEW RECORDS

Elegans-group

Mecynotarsus elegans: Florida: *Dade Co.*, Biscayne, 1 May, E. A. Schwarz (OSUC); *Palm Beach Co.*, L. Worth (OSUC).

Mecynotarsus balsasensis: MEXICO: *Veracruz*: 12 mi NW Alvarado, 30 July 1975, under plants on beach, D. S. Chandler. *Oaxaca*: Salina Cruz, 3 July 1975, at cantharidin bait, D. S. Chandler (all DSC). *Morelos*; Lago Tequesquitengo, 18 August 1965, M. H. Sweet (TAMU).

Mecynotarsus salvadorensis: MEXICO: *Quintana Roo*; Isla Mujeres, sea beach, 18 January 1966, G. E. & K. E. Ball (FGW). This population has the anterior oblique white bands of the elytra reduced in some specimens. The phallobase of the male genitalia is laterally lobiform.

Candidus-group

Mecynotarsus candidus: Virginia: *Accomack Co.*: 1 June 1972, F. G. Werner & J. F. Burger, sand dune area. New Jersey: *Gloucester Co.*: Westville, 5 May/12 June, H. A. Wenzel. Georgia: *Chatham Co.*: Tybee Island, 28 June/3 July, H. A. Wenzel. New Mexico: *Otero Co.*: White Sands, 12 April 1965, O. W. Richards, on dunes. MEXICO: *Chihuahua*: 48 km S. Juarez, 28 April 1974, D. Guiliani, sand dunes.

Mecynotarsus delicatus: Utah: *Washington Co.*: 6 mi S Hurricane. Nevada: *Churchill Co.*: Carson Sink, 10 mi N. Stillwater. *Esmaralda Co.*: Clayton Valley Dunes. California: *Fresno Co.*: 18 mi SW Mendoza. *Imperial Co.*: Glamis. *Inyo Co.*: S end Owens Lake. *Los Angeles Co.*: Pasadena. *Riverside Co.*: Palm Springs. *Sacramento Co.*: Grand Island, sand dunes nr. Isleton. *San Bernardino Co.*: Kelso. *Solano Co.*: Rio Vista. Arizona: *Coconino Co.*: Moenkopi dunes. MEXICO: *Sonora*: sand dunes 8 km N, 16 km W Guaymas; Huatabampito.

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